



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,889	07/11/2001	Kyo Akagi	500.40346X00	7872

20457 7590 07/31/2003

ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-9889

EXAMINER

NEGRON, DANIEL L

ART UNIT	PAPER NUMBER
----------	--------------

2651

DATE MAILED: 07/31/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

4

**Office Action Summary**

Application No.

09/901,889

Applicant(s)

AKAGI ET AL. 

Examiner

Daniell L. Negron

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 104, 410, and 1104. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: On page 21, line 8 discloses element 701 as part of Fig. 18. This element is not present in said drawing. Examiner suggests that "701" should be replaced with "901" in the specification. On page 23, line 11 discloses element 901 as being part of Fig. 23. This element is not present in said drawing. Examiner suggests that "901" should be replaced with "1101" in the specification. On page 24, line 16 discloses element 1101 as part of Fig. 27. Examiner suggests that "1101" should be replaced with "1301" in the specification. Also, on pages 25-26 Fig. 1 is described as comprising elements 1601-1609. Examiner suggests that "Fig. 1" should be replaced with "Fig. 32" in the specification.

Appropriate correction is required.

3. The references submitted by applicant in paper #3, filed 7-11-01 in compliance with the duty of disclosure under 37 C.F.R. 1.56(a), have been considered by the examiner. However, should the applicant desire these references to be listed on the front of any patent that may issue

from the present application, the applicant should list them in an approved form such as PTO-1449 and submit the same in response to this office action.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1, 2, 4, 5, and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Schmitz U.S. Patent 5,034,837.

Schmitz discloses in figures 1-16 a magnetic disk apparatus, which comprises a magnetic disk, a spindle motor for rotating magnetic disk, a magnetic head, a supporting member for magnetic head, and a driving mechanism for moving magnetic head (see fig. 1). Schmitz also discloses a magnetic read/write circuit for said magnetic head (col. 6, lines 5-18), an interface for sending/receiving signals to/from another information processing device (col. 6, lines 24-32), means for detecting operation of magnetic disk apparatus (col. 17, lines 23-47), and a mechanism for latching movable part of magnetic disk (col. 5, lines 43-64).

Referring to claim 2, Schmitz discloses detections means for disk operation via power-down and external control signal (see column 17, lines 14-47).

Referring to claims 4 and 5, Schmitz discloses a mechanism that latches the actuator of the magnetic head using a voice coil motor and a magnetized pin, which holds the moving parts in the latched position (see column 5, lines 43-64).

Referring to claim 9, Schmitz discloses a magnetic disk apparatus comprising a magnetic disk and magnetic head (see fig. 1). Schmitz also discloses means for rotating magnetic disk (see fig. 16), means for positioning magnetic head upon magnetic disk (col. 6, lines 1-18), an interface for sending/receiving signals to/from an external information processing device (col. 6, lines 24-32), and means for latching and unlatching a movable via a command from an information processing device (col. 5, lines 43-64).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz U.S. Patent No. 5,034,837 in view of Aoyanagi Japanese Patent Document No. 3-100965.

Schmitz discloses a magnetic disk apparatus with all the limitations of claim 1 as described above. Schmitz discloses a mechanism that latches a movable part of the magnetic head (col. 3, lines 10-15), however does not disclose a mechanism for latching a movable part of spindle motor or magnetic disk. Aoyanagi discloses a magnetic disk apparatus in which the spindle motor of said magnetic disk is latched depending on whether the apparatus is in operation (see page 4, paragraph 2 of Japanese Patent Document Translation). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement a magnetic disk latching as well as a magnetic head latching mechanism in a

Art Unit: 2651

magnetic disk apparatus in order to improve damage protection of the magnetic disk and magnetic head by suppressing the rotation of a spindle motor as taught by Aoyanagi and by moving and locking the magnetic head away from the magnetic disk as taught by Schmitz.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz U.S. Patent No. 5,034,837 in view of Malek U.S. Patent No. 4,903,157.

Schmitz discloses a magnetic disk apparatus with all the limitations of claim 1 as described above. Schmitz discloses a magnetic disk apparatus in which a movable part is latched using permanent magnets when the apparatus is not in operation, however the latching means disclosed does not use an electromagnet. Malek discloses a magnetic head latching mechanism for a magnetic disk apparatus in which an electromagnet is used to hold or latch the magnetic head away from the magnetic disk when said apparatus is not in operation (col. 2, lines 48-68 and col. 3, lines 1-7). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an electromagnet in place of permanent magnets as taught by Malek in order to latch the magnetic head away from the magnetic disk with a mechanism that is more compact and lightweight than the mechanism disclosed by Schmitz.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz U.S. Patent No. 5,034,837 in view of Jang U.S. Patent No. 6,061,207.

Schmitz discloses a magnetic disk apparatus with all the limitations of claim 1 as described above. Schmitz discloses a magnetic disk apparatus in which a movable part is latched using permanent magnets when the apparatus is not in operation, however the latching means disclosed does not use bimetal. Jang discloses a magnetic head latching mechanism for a magnetic disk apparatus in which a bimetal is used to hold or latch the magnetic head away from

Art Unit: 2651

the magnetic disk when said apparatus is not in operation (col. 2, lines 5-26). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a bimetal in place of permanent magnets as taught by Jang in order to latch the magnetic head away from the magnetic disk with a mechanism that does not release the magnetic head by external impact.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz U.S. Patent No. 5,034,837 in view of Yaeger et al U.S. Patent No. 4,996,617.

Schmitz discloses a magnetic disk apparatus with all the limitations of claim 1 as described above. Schmitz discloses a magnetic disk apparatus in which a movable part is latched using permanent magnets when the apparatus is not in operation, however the latching means disclosed does not use a shape memory alloy. Yaeger et al discloses a magnetic head latching mechanism for a magnetic disk apparatus in which a shape memory alloy is used to hold or latch the magnetic head away from the magnetic disk when said apparatus is not in operation (col. 5, lines 25-50). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a shape memory alloy in place of permanent magnets as taught by Yaeger et al in order to latch the magnetic head away from the magnetic disk with a mechanism that is less power consuming and more compact having less electrical or mechanical components than the mechanism disclosed by Schmitz.

Claims 10,11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz U.S. Patent No. 5,034,837 in view of Hopkins et al U.S. Patent No. 5,345,347.

Schmitz discloses a magnetic disk apparatus with all the limitations of claim 9 as described above. Schmitz discloses a magnetic disk apparatus in which the magnetic head is

Art Unit: 2651

latched by specific command. Schmitz does not disclose the types of these specific commands.

Hopkins et al discloses a magnetic disk apparatus in which the magnetic head is latched in response to either a read/write command (col. 2, lines 38-40) or a command for moving the magnetic head (col. 3, lines 39-44). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to latch the magnetic head after processing a command to read, write, or move the head as taught by Hopkins et al in order to reduce power consumption and prevent movement or damage due to external impact or vibration.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz U.S. Patent No. 5,034,837 in view of Aoyanagi Japanese Patent Document No. 3-100965.

Schmitz discloses a magnetic disk apparatus comprising a magnetic disk and a magnetic head (see fig. 1). Schmitz also discloses an actuator for positioning the magnetic head, a magnetic reading/writing circuit for enabling the magnetic head to write/read information (col. 5, lines 65-68 and col. 6 lines 1-18), and an interface for sending/receiving information and a signal for controlling the information to/from outside of the magnetic disk device. The apparatus disclosed by Schmitz also comprises circuitry and mechanisms for stopping the magnetic disk after a predetermined time lapsed from completion of information reading/writing, and for latching the magnetic head. Schmitz however does not disclose latching means for the magnetic disk after reading/writing. Aoyanagi discloses a magnetic disk apparatus in which the magnetic head is latched by restricting the movement of the spindle motor (see figs. 1 and 2). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement a magnetic disk latching mechanism to the apparatus disclosed by Schmitz in order to latch both the magnetic head and the magnetic disk of a magnetic disk apparatus in order



Art Unit: 2651

to restrict the movement of the magnetic disk and magnetic head and prevent movement or damage due to external impact or vibration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniell L. Negron whose telephone number is 703-305-6975. The examiner can normally be reached on Monday-Friday (8:30-6:00) Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on 703-308-4825. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-6743 for regular communications and 703-308-6743 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

DLN  
July 25, 2003

  
**DAVID HUDSPETH**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**